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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
EDWARDS, PATRICK L	

ART UNIT	PAPER NUMBER
2621	3

DATE MAILED: 11/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/772,532	ICHIMURA, YASUUMI	
	Examiner	Art Unit	
	Patrick L Edwards	2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-3 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-3 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☒ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Specification

1. 35 U.S.C. 112, first paragraph, requires the specification to be written in "full, clear, concise, and exact terms." The specification is replete with terms which are not clear, concise and exact. The specification should be revised carefully in order to comply with 35 U.S.C. 112, first paragraph. The specification contains numerous grammatical and spelling errors. Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Throup (US Patent 6,292,167 B1) in view of Aoyama (US Patent 6,480,300 B1). With regard to claim 1, Throup discloses a method of creating a defocused image from an existing image (Throup column 8 lines 32-33). Throup also discloses providing a memory which is able to store a series of pixel data (Throup Figure 3). The memory shown in Figure 3 of Throup comprises an image store (element 2), a holding store (element 24), and a coefficient store (element 18). Throup also discloses storing a series of input pixel data, output pixel data and aperture pixel data in said memory (Throup Figure 3 and column 8 lines 32-40). The input pixel data is stored in the image store, the output pixel data is stored in the holding store and the aperture pixel data is stored in the coefficient store. The data in the coefficient store as disclosed in Throup (Throup column 8 lines 48-50) is analogous to the aperture pixel data as recited in the claim just as the array of coefficients shown in Figure 5 of Throup is analogous to an aperture as defined by the applicant, in that both define a pixel area in which data from a target pixel is spread (Throup column 8 lines 61-64).

Throup also discloses a display, which is connected to memory and displays the pixel data stored in memory (Throup Figure 1 in conjunction with column 4 lines 17-33). Although Throup does not expressly disclose displaying input pixel data, output pixel data and aperture pixel data, Throup discloses a display processor that reads selected data for display on a monitor. Since the memory stores input pixel data, output pixel data and aperture pixel data, we can assume that the selected data from the image store refers to any of the three types of pixel data. Throup further discloses a computer processing unit (Throup element 17 of Figure 3). Throup does not expressly disclose resetting the contents of the output pixel data to zero. However, Throup does disclose a holding store which stores the contributions from each pixel that are added together to produce a value. As a result, resetting the contents of the output memory to zero is an inherent step that would have to occur in order for the system disclosed in Throup to function properly. Throup also discloses computing a series of pixel data of a defocused disk for each pixel of the input pixel data (Throup column 8 lines 41-46 and Figure 4). The area that the target pixel is spread as disclosed in Throup is analogous to a defocused disk as recited in the claim. Throup also discloses adding the series of pixel data of a defocused disk to the output pixel data (Throup column 8 line 66 – column 9 line 2) until all of the input data have been processed (Throup column 8 lines 46-47). Throup further discloses a display device which will display selected data from the output pixel data (Throup column 4 lines 26-33). We can assume that the defocused image is a part of this selected data.

With regard to parts e, g2 and g5 of claim 1, the applicant recites converting image pixel data (which is in logarithmic scale) to data that linearly corresponds to the amount of light before performing the defocusing processing on the image. The applicant further recites converting the light data back to the logarithmic scale (or image pixel data) after the defocusing has been performed. Throup discloses a gamma factor defining the relationship between the pixel data and the corresponding light data (Throup column 3 lines 31-32) but does not expressly disclose a logarithmic conversion between these two scales. Aoyama, however, discloses the conversion of the logarithmic digital data of the original image to a linear

scale of data which corresponds to the amount of luminance (Aoyama column 3 lines 10-20) before performing the defocusing processing (Aoyama column 3 lines 46-52) and then converting the data back to the logarithmic scale after the defocusing processing has been done (Aoyama column 3 lines 53-55). The smoothing processing as disclosed in Aoyama is analogous to the defocusing as recited in the claim.

It would have been obvious to one reasonably skilled in the art at the time of the invention to combine the method of converting logarithmic pixel data to linear luminance before defocusing as taught by Aoyama with Throup's image defocusing system. Such a modification would have allowed for the defocusing system disclosed in Throup to be performed on linear luminance data rather than logarithmic pixel data. This would have made for an electronic defocusing system that more accurately represented the defocusing of an actual camera (Aoyama column 3 lines 29-39).

With regard to claim 2, Throup further discloses that the array, which is analogous to an aperture as recited in the claim (Throup column 4 lines 61-64), is defined by a mathematical function (Throup column 8 lines 53-56).

With regard to claim 3, the applicant recites that the characteristic curve responsible for the conversion of logarithmic pixel data to linear luminance data is given by a table for individual values. Aoyama discloses a conversion means to convert logarithmic pixel data to linear luminance data but does not expressly disclose that a table is used to make this conversion. However, using a table to make an image data conversion is one of many methods well known in the art for data conversion. It would have been an obvious matter of design choice to modify the Aoyama by specifying that a table is utilized to make the conversion, since applicant has not disclosed that making the conversion using a table solves any stated problem or is for any particular purpose and it appears that the defocusing system would perform equally well if another conversion means was utilized.

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Zhang et al (US Patent 6,201,613) is cited for showing a blurring filter with a 7x7 aperture in Figures 2-5.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick L Edwards whose telephone number is (703) 305-6301. The examiner can normally be reached on 8:30am - 5:00pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Boudreau can be reached on (703) 305-4706. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Patrick Edwards

Art Unit 2621

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LEO BOUDREAU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600